

## Publications and Presentations related to the AVESTAR Center

- Jones, D., D. Bhattacharyya, R. Turton, and S.E. Zitney, "Rigorous Kinetic Modeling, and Optimization, and Operability Study of a Modified Claus Unit for an Integrated Gasification Combined Cycle (IGCC) Power Plant with CO<sub>2</sub> Capture," *Industrial & Engineering Chemistry Research*, 51(5), 2362-2375 (2012).  
<http://pubs.acs.org/doi/abs/10.1021/ie201713n>
- Liese, E.A., S.E. Zitney, P. Mahapatra, R. Turton, D. Bhattacharyya, and G. Provost, "AVESTAR Center for Operational Excellence of Clean Energy Plants," Presented at *2012 Power Plant Simulation Conference (PowerPlantSim'12)*, San Diego, CA, February 12-17 (2012).
- Zitney, S.E., "AVESTAR<sup>TM</sup> Center for Clean Energy Plant Operators of the Future," Presented at the *Sixteenth Annual ARC World Industry Forum: Transforming Industry through New Processes and Technologies*, Orlando, FL, February 6-9 (2012).  
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- Zitney, S.E., "Virtually Simulating the Next Generation of Clean Energy Technologies," *Control Magazine*, January 5 (2012). <http://www.controlglobal.com/articles/2012/cleanenergy.html>
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- Mahapatra, P., W. Bequette, and S.E. Zitney, "Multiple Model Predictive Control of Air Separation Unit As Part of IGCC Power Plant During Rapid Load Changes," Presented at the *AIChE 2011 Annual Meeting*, Minneapolis, MN, October 16-21 (2011).
- Mahapatra, P., W. Bequette, and S.E. Zitney, "Application of Model Predictive Control for Rapid Combined-Cycle Load Following Using Custom Dynamic Models In Process-Simulation Software Environment," Presented at the *AIChE 2011 Annual Meeting*, Minneapolis, MN, October 16-21 (2011).
- Bhattacharyya, D., R. Turton, and S.E. Zitney, "Model Predictive Control for Load-Following of an Integrated Gasification Combined Cycle (IGCC) Plant with CO<sub>2</sub> Capture," Presented at the *AIChE 2011 Annual Meeting*, Minneapolis, MN, October 16-21 (2011).
- Bhattacharyya, D., R. Turton, and S.E. Zitney, "Transient Studies of an Integrated Gasification Combined Cycle (IGCC) Plant with CO<sub>2</sub> Capture," Presented at the *AIChE 2011 Annual Meeting*, Minneapolis, MN, October 16-21 (2011).
- Bhattacharyya, D., R. Turton, and S.E. Zitney, "Students Learn Fundamentals of Process Operations and Control using Dynamic Simulator of an Integrated Gasification Combined Cycle (IGCC) Plant with CO<sub>2</sub> Capture," Presented at the *AIChE 2011 Annual Meeting*, Minneapolis, MN, October 16-21

(2011).

- Jones, D., D. Bhattacharyya, R. Turton, and S.E. Zitney, "Modeling and Optimization of a Modified Claus Process as part of an Integrated Gasification Combined Cycle (IGCC) Power Plant with CO<sub>2</sub> Capture," Presented at the *AIChE 2011 Annual Meeting*, Minneapolis, MN, October 16-21 (2011).
- Paul, P., D. Bhattacharyya, R. Turton, and S.E. Zitney, "Constrained Nonlinear State Estimation of an Acid Gas Removal Process as part of an Integrated Gasification Combined Cycle (IGCC) Power Plant with CO<sub>2</sub> Capture," Presented at the *AIChE 2011 Annual Meeting*, Minneapolis, MN, October 16-21 (2011).
- Kasule, J., R. Turton, D. Bhattacharyya, and S.E. Zitney, "Rigorous Modeling of An Entrained Flow Gasifier Considering a Heuristic Recirculation Model and a Detailed Energy Balance," Presented at the *AIChE 2011 Annual Meeting*, Minneapolis, MN, October 16-21 (2011).
- Zitney, S.E., E.A. Liese, P. Mahapatra, R. Turton, D. Bhattacharyya, and G. Provost "Advanced Virtual Energy Simulation, Training, and Research: IGCC with CO<sub>2</sub> Capture Power Plant," *Proc. of the 28<sup>th</sup> Annual International Pittsburgh Coal Conference*, Pittsburgh, PA, September 12-15 (2011).
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- Zitney, S.E., "Advanced Process and Dynamic Systems R&D for Energy and the Environment," Presented at Energy Systems Initiative (ESI) Meeting, Carnegie Mellon University, Pittsburgh, PA,

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